

Abstract

A heteroscopic turbine with a Knudsen number of less than ten. In one embodiment, the heteroscopic turbine generates a flow from a gas. The turbine includes at least a moving surface and a plurality of turbine blades on or in said surface. Each of the blades has a height comparable to a mean free path distance that characterizes molecules in the gas, and the blades are spaced apart by a distance comparable to the mean free path distance. In operation, the surface moves such that the turbine blades pass through the gas at a speed comparable to the mean thermal velocity. In different embodiments, the turbine can perform filtering of molecules in the gas based on direction and/or speed (velocity). Also, techniques by which such a turbine operates.